Amendments to the Specification:

Page 2, line 26 through page 3, line 4, please amend the paragraph as follows:

The first expression is a so-called "DOT" expression and the second one a "CROSS" expression. The DOT signal allows phase displacement between two successive symbols to be determined, whereas DOT and CROSS signals considered together allow one to determine the integer times $\pi/2$ of the phase displacement between successive symbols. These DOT and CROSS signals thus enable correct and unambiguous demodulation when differential phase modulation has been used at the transmitter.

Page 10, lines 1-12, please replace the paragraph with the following:

- $b_u(t) = \sum_{i=0}^{M-1} b_{i,u} p_{T_b}(t - iT_b)$, is data transmitted,

where $b_{i,u}$ adopt the values +1 or -1, M being the number of bits contained in the block of information under consideration:

$$p_{T_b}(t) = \begin{cases} 1 \; if \; t \; is \; in \; range \; 0 - T_b \\ 0 \; if \; t \; is \; outside \; this \; range \end{cases}$$

$a_u(t)$ is the spread spectrum sequence, i.e. $a_u(t) = \sum_{i=0}^{M-1} \sum_{j=0}^{N-1} X_j^k P_{T_c}$ (t - jT_c - iT_b), where

$N = \dfrac{T_b}{T_c}$ is the processing gain or sequence length, X_j^o adopts the values +1 or -1 and T_c is the duration of a rectangular chip;

- ϕ_u is a phase (with respect to a reference phase).

Page 13, line 10, please replace the paragraph with the following:

$$\begin{cases} p(r_u)=\frac{1}{\sqrt{2\pi\sigma}}^{-\frac{r_u^2}{2\sigma^2}} \\ p(i_u)=\frac{1}{\sqrt{2\pi\sigma}}^{-\frac{i_u^2}{2\sigma^2}} \end{cases}$$

Page 14, lines 1-3, please replace the paragraph with the following:

$$\begin{cases} r_u = A_u \cos(\phi_u) \\ i_u = A_u \sin(\phi_u) \end{cases}$$

can be defined.

Page 15, lines 1-16, please replace the paragraph with the following:

$$\begin{cases} m_{r_u} = S_u \cos(\theta_u) \\ m_{u_u} = S_u \sin(\theta_u) \end{cases}.$$

$$\bar{q}(A_u) = \int_{\phi_u=0}^{2\pi} \frac{1}{2\pi\sigma^2} e^{-\frac{A_u^{2\phi}}{2\sigma^2}-\frac{S_u^2-2A_uS_u\cos(\phi_u\theta_u)}{2\sigma_2}} \mathrm{d}\Phi_u = \frac{1}{\pi\sigma^2} e^{-\frac{A_u^2+S_u^2}{2\sigma^2}} I_0\left(\frac{A_uS_u}{\sigma^2}\right)$$

is obtained, where I_0 designates the zero order Bessel function.

The probability of correct correlation peak detection is then:

$$P^{(1)} = \int_{\Re} q(A_u)\left(\int_{x=A_u}^{+\infty} \bar{q}(x)dx\right)dA_u$$

$$\text{i.e., } P^{(1)} = \int_{\Re} \frac{A_u e^{-\frac{A_u^2+S_u^2}{2\sigma^2}}}{\pi\sigma^2}\left(\int_{A_u}^{+\infty} e^{-\frac{x^2}{2\sigma^2}} I_0\left(\frac{xS_u}{\sigma^2}\right)dx\right)dA_u$$

This calculation is valid for a single delayed multiplication, which explains the upper index (1) affecting P. It can be extended to the case of double delayed multiplication, and in general to the case of n delayed multiplications. The expressions then are:

$$A_u^2 = r_u^2 + i_u^n$$

$$\begin{cases} r_u^{(n)} = A_u^{2^{n-1}} \cos(\phi_u) \\ i_u^{(n)} = A_u^{2^{n-1}} \sin(\phi_u) \end{cases}$$